(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 15 July 2004 (15.07.2004)

PCT

(10) International Publication Number WO 2004/059815 A1

(51) International Patent Classification⁷:

....

H02J 7/00

(21) International Application Number:

PCT/KR2003/002744

(22) International Filing Date:

13 December 2003 (13.12.2003)

(25) Filing Language:

Korean

(26) Publication Language:

English

(30) Priority Data: 10-2002-0086299

30 December 2002 (30.12.2002) KR

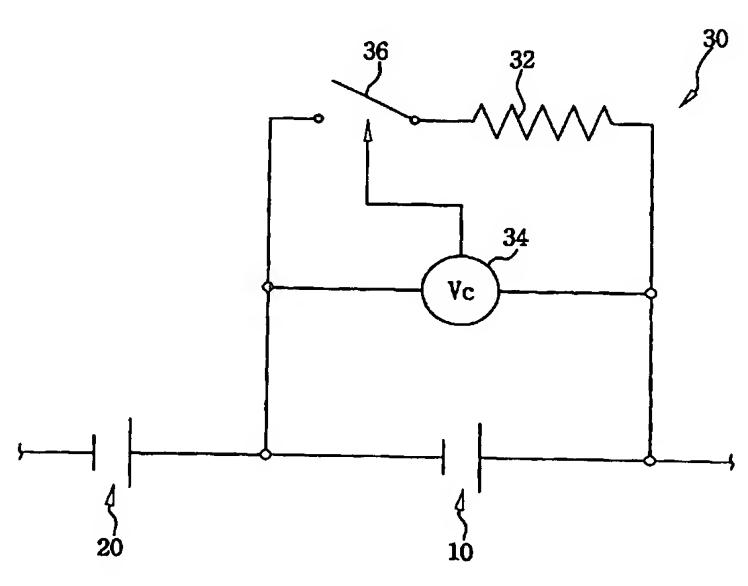
- (71) Applicant (for all designated States except US): NESS CAP CO., LTD. [KR/KR]; #29-9 Woncheon-dong, Paldal-gu, Suwon-si, Gyeonggi-do 442-380 (KR).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): KIM, Sung-Min [KR/KR]; #374-3 Seocheon-ri, Giheung-eup, Yongin-si, Gyeonggi-do 449-906 (KR). LEE, Hee-Young [KR/KR]; 303-1504 Chowon Daewon Apt., Pyeongchon-dong, Dongan-gu, Anyang-si, Gyeonggi-do 431-070 (KR).

JUNG, Yong-Ho [KR/KR]; #30-40, Woncheon-dong, Paldal-gu, Suwon-si, Gyeonggi-do 442-821 (KR). KIM, Heui-Soo [KR/KR]; 102-204 Donga Green Apt., #411, Ichon2-dong, Yongsan-gu, Seoul 140-032 (KR). PARK, Sung-Chul [KR/KR]; 402-4 Imun2-dong, Dongdae-mun-gu, Seoul 130-834 (KR). LEE, Ha-Young [KR/KR]; 202, #30-45 Wonchun-dong, Paldal-gu, Suwon-si, Gyeonggi-do 442-821 (KR). KIM, Eun-Sil [KR/KR]; #87-3 Uman2-dong, Paldal-gu, Suwon-si, Gyeonggi-do 442-816 (KR).

- (74) Agent: PARK, Young-Woo; 5F., Seil Building, #727-13, Yoksam-dong, Gangnam-gu, Seoul 135-921 (KR).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),

[Continued on next page]

(54) Title: ELECTRIC ENERGY STORAGE DEVICE AND METHOD OF CHARGING AND DISCHARGING THE SAME



(57) Abstract: Disclosed are an electric energy storage device having a good cycle characteristic and a temperature characteristic and a method of charging and discharging the electric energy storage device. The electric energy storage device including a capacitor and a secondary battery combined in series is provided. When the capacitor of the electric energy storage device is an electric double layer capacitor, the capacitor is used to the voltage of OV or less to increase an available energy usage. When this energy storage device is used as a power in a place where a rapid keeping and repairing is difficult such as out in the fields including in the mountain, at the sea, on the road, the cost for keeping and repairing can be largely reduced.